

Hammer 10/774,344

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Application No.: 10/774,344
Filing Date: February 6, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (currently amended): A ~~solid~~ support comprising (i) ~~a solid~~ noncompressible a porous noncompressible solid material, and (ii) a tether polymer covalently bound to the solid ^{material} that is amenable to grafting with other polymers, and (iii) a protective polymeric surface covering that reduces nonspecific interactions of solutes with said solid, ^{material} and (iv) a functional polymer or copolymer grafted to the tether polymer and possessing useful chemical functionality.

Claim 2 (currently amended): The ~~solid~~ support of claim 1 having sorptive capacity.

Claim 3 (currently amended): The ~~solid~~ support of claim 2 having reversible sorptive capacity.

Claim 4 (currently amended): The ~~solid~~ support of claim 1 further comprising chemical stability on exposure to strong acidic or alkaline medium.

Claim 5 (currently amended): The ~~solid~~ support of claim 1 that is substantively devoid of nonspecific binding of proteins and other biomacromolecules to the surface of said solid.

Claim 6 (currently amended): The ~~solid~~ support of claim 1 in which said ~~solid material~~ is silica.

Claim 7 (currently amended): The ~~solid~~ support of claim 1 in which said ~~solid material~~ is alumina.

Claim 8 (currently amended): The ~~solid~~ support of claim 1 in which said ~~solid material~~ is polystyrene.

Claim 9 (currently amended): The support of claim ² ~~1~~ in which ^{said} ~~solid~~ material is silica.

Claim 10 (currently amended): The ~~solid~~ support of claim ~~2~~ ¹ in which the ~~solid material~~ is a silica membrane.

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Claim 11 (currently amended): The ~~solid~~ support of claim 7 1 in which the ~~solid material~~ is an alumina membrane.

Claim 12 (currently amended): The ~~solid~~ support of claim 1 in which the ~~solid material~~ is a polymer membrane.

Claim 13 (currently amended): The ~~solid~~ support of claim 1 in which said ~~grafted~~ functional polymer or copolymer is prepared by polymerization of vinyl monomers.

Claim 14 (currently amended): The ~~solid~~ support of claim 13 in which said ~~grafted~~ functional polymer or copolymer is prepared by polymerization of vinyl monomers in the presence of a polymerization initiator.

Claim 15 (currently amended): The ~~solid~~ support of claim 13 in which said ~~grafted~~ functional polymer or copolymer is prepared by polymerization of vinyl monomers in the presence of a polymerization initiator selected from the group consisting of persulfate/tertiary amine, persulfate and a transition metal, nitriles, azo compounds, and photochemical initiators.

Claim 16 (currently amended): The ~~solid~~ support of claim 13 in which said ~~grafted~~ functional polymer or copolymer is prepared by polymerization of vinyl monomers initiated by radiant energy.

Claim 17 (canceled)

Claim 18 (canceled)

Claim 19 (canceled)

¹⁷
Claim 20 (currently amended): The ~~solid~~ support of claim 1 in which the protective polymeric surface is prepared by reaction of said ~~solid material~~ with trihalo or trialkoxy silane reagents.

¹⁸
Claim 21 (currently amended): The ~~solid~~ support of claim 1 in which the tether polymer is bound to the material by reaction of said material with trihalo or trialkoxy silane reagents.

¹⁹
Claim 22 (currently amended): The ~~solid~~ support of claim 1 in which the tether polymer is bound to said material by reaction of said material with trihalo or trialkoxy silane reagents, said silane reagents having functional groups selected from the group

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consisting of polybutadiene, polyethylene glycol, polyvinyl alcohol, polypropylene glycol.

Claim 23 (canceled)

Claim ~~24~~²⁰ (currently amended): The ~~solid~~ support of claim 1 in which the protective polymeric surface covering is prepared by reaction of said material with trihalo or trialkoxy silane reagents, said silane reagents having functional groups selected from the group consisting of 2-trichlorosilylethyl, methoxy propyl ethylene glycol, substituted ethylene glycols, and alkyl.

Claim ~~25~~²¹ (currently amended): The ~~solid~~ support of claim 1 in which said ~~grafted~~ functional polymer or copolymer has cation exchange functionality.

Claim ~~26~~²² (currently amended): The ~~solid~~ support of claim 1 in which said ~~grafted~~ functional polymer or copolymer has anion exchange functionality.

Claim ~~27~~²³ (currently amended): The ~~solid~~ support of claim 1 in which said ~~grafted~~ functional polymer or copolymer has metal binding functionality.

Claim ~~28~~²⁴ (currently amended): The ~~solid~~ support of claim 1 in which said ~~grafted~~ functional polymer or copolymer has metal chelating functionality.

Claim 29 (canceled)

Claim 30 (canceled)

Claim ~~31~~²⁵ (currently amended): The ~~solid~~ support of claim 1 in which said grafted functional polymer or copolymer has selective functional groups attached to the polymer or copolymer chain that selectively adsorbs molecules or ions from solutions in contact with the solid support.

Claim ~~32~~²⁶ (currently amended): The ~~solid~~ support of claim 1 in which said grafted functional polymer or copolymer has functional groups useful for initiating solid supported syntheses.